

WHAT IS CLAIMED IS:

- 1 1. A signal transfer point node within a Signaling System 7 (SS7)
- 2 telecommunications network serving a particular local switch and further connected
- 3 to a packet communications network, comprising:
- 4 a first interface for receiving a SS7 signal from said particular local switch,
- 5 said SS7 signal having a destination address within said SS7 telecommunications
- 6 network;
- 7 a first routing table for determining the routing mechanism within said SS7
- 8 telecommunications network;
- 9 a second routing table for determining the routing mechanism within said
- 10 packet communications network; and
- 11 a processor for determining whether said destination address associated
- 12 with said received SS7 signal is specified within said second routing table.

1 2. The signaling transfer point node of Claim 1 further comprising:
2 a second interface for communicating packet data with said packet
3 communications network; and
4 an interworking function module connected to said second interface for
5 encapsulating said SS7 signal within a packet and for transmitting said packet over
6 said second interface.

1 3. The signaling transfer point node of Claim 2 wherein said interworking
2 function module utilizes Message Transfer Part 3 - User Adaptation Layer (M3UA)
3 protocol to communicate said SS7 signal over said packet communications
4 network.

1 4. The signal transfer point node of Claim 1 further comprising:
2 a third interface for communicating said received SS7 signal over said SS7
3 telecommunications network; and
4 wherein said processor transmits said received SS7 signal over said third
5 interface in response to a determination that said destination address associated
6 with said received SS7 signal is specified within said first routing table.

1 5. The signal transfer point node of Claim 1 wherein said packet
2 communications network further comprising:

3 an address server for maintaining address data for a plurality of
4 communications nodes within said packet communications network;

5 a plurality of said STPs connected to said packet communications network;

6 and

7 wherein said server communicates said address data to said plurality of
8 STPs over said packet communications network;

1 6. The signaling transfer point node of Claim 1 wherein said first routing table
2 comprises a point code (PC) table for said destination address.

1 7. The signaling transfer point node of Claim 1 wherein said second routing
2 table comprises an Internet Protocol (IP) address table for a particular signaling
3 transfer point serving a destination local switch associated with said destination
4 address.

1 8. The signaling transfer point node of Claim 1 wherein said first interface
2 comprises a trunk interface with said local switch.

1 9. A method of communicating a SS7 signal over a packet based
2 communications network wherein said SS7 signal is originated from a local switch
3 connected to a SS7 telecommunications network, further comprising the steps of:
4 receiving a SS7 signal from said local switch, said SS7 signal indicating a
5 destination address within said SS7 telecommunications network;
6 determining whether said destination address indicated by said received
7 SS7 signal is specified within a routing code table indicating that said destination
8 address is reachable by said packet based communications network;
9 in response to said determination, routing said SS7 signal over said packet
10 based communications network using a determined routing code as the destination
11 address within said packet based communications network;
12 otherwise,
13 determining whether said destination address indicated by said received
14 SS7 signal is specified within a point code table indicating that said destination
15 address is reachable by said SS7 telecommunications network; and
16 in response to said determination, routing said SS7 signal over said SS7
17 telecommunications network.

1 10. The method of claim 9 wherein said step of determining whether said
2 destination address is specified within said routing code table is performed by a
3 first signal transfer point (STP) connected to said local switch.

1 11. The method of claim 10 wherein said step of routing said received SS7
2 signal over said packet based communications network further comprises the steps
3 of:

4 identifying an Internet Protocol (IP) address associated with a second signal
5 transfer point (STP) serving a destination local switch associated with said received
6 destination address within said routing code table;

7 encapsulating said received SS7 signal within an Internet protocol (IP)
8 based packet; and

9 routing said IP packet using said identified IP address associated with said
10 second STP as the destination address over said packet based communications
11 network.

1 12. The method of Claim 11 further comprises the step of utilizing Message
2 Transfer Part 3 – User Adaptation Layer (M3UA) protocol to transmit said received
3 SS7 signal over said product based communications network and to support peer-
4 to-peer signaling.

1 13. The method of Claim 11 wherein said step of routing said received SS7
2 signal over said SS7 telecommunications network further comprises the step of said
3 first STP routing said received SS7 signal over said SS7 telecommunications
4 network using said point code as the destination address.

1 14. The method of Claim 9 further comprising the steps of:
2 receiving an address update packet signal from a centralized server; and
3 updating said routing code table with data received within said address
4 update packet signal.

1 15. The method of Claim 14 wherein said SS7 telecommunications network
2 includes a plurality of signal transfer points (STPs), each including said routing
3 code table, wherein each of said STPs further receiving said address update packet
4 signal from said centralized server for updating said routing code table.

1 16. A system for communicating a SS7 signal over a packet based
2 communications network wherein said SS7 signal is originated from a local switch
3 connected to a SS7 telecommunications network, further comprising:

4 means for receiving a SS7 signal from said local switch, said SS7 signal
5 indicating a destination address within said SS7 telecommunications network;

6 means for determining whether said destination address indicated by said
7 received SS7 signal is specified within a routing code table indicating that said
8 destination address is reachable by said packet based communications network;

9 in response to said determination, means for routing said SS7 signal over
10 said packet based communications network using a determined routing code as the
11 destination address within said packet based communications network;

12 otherwise,

13 means for determining whether said destination address indicated by said
14 received SS7 signal is specified within a point code table indicating that said
15 destination address is reachable by said SS7 telecommunications network; and

16 in response to said determination, means for routing said SS7 signal over
17 said SS7 telecommunications network.

1 17. The system of claim 16 wherein said means for determining whether said
2 destination address is specified within said routing code table comprises a first
3 signal transfer point (STP) connected to said local switch.

1 18. The system of Claim 17 wherein said means for routing said received SS7
2 signal over said packet based communications network further comprises:

3 means for identifying an Internet Protocol (IP) address associated with a
4 second signal transfer point (STP) serving a destination local switch associated with
5 said received destination address within said routing code table;

6 means for encapsulating said received SS7 signal within an internet
7 protocol (IP) based packet; and

8 means for routing said IP packet using said identified IP address as the
9 destination address over said packet based communications network.

1 19. The system of Claim 18 further comprises means for utilizing Message
2 Transfer Part 3 – User Adaptation Layer (M3UA) protocol to transmit said received
3 SS7 signal over said packet communications network.

1 20. The system of Claim 18 wherein said first STP further comprises means
2 for routing said received SS7 signal over said SS7 telecommunications network
3 using said point code as the destination address.

1 21. The system of Claim 16 further comprising:
2 means for receiving an address update packet signal from a centralized
3 server; and
4 means for updating said routing code table with data received within said
5 address update packet signal.

1 22. The system of Claim 21 herein said SS7 telecommunications network
2 further comprising a plurality of signal transfer points (STPs), each comprising
3 said routing code table, wherein each of said STPs further comprising means for
4 receiving said address update packet signal from said centralized server for
5 updating said routing code table.